

Vermont Psychiatric Care Hospital Procedure	
Anticoagulation Monitoring	
Revised: X	Date: 04/07/14

PURPOSE:

- To provide a safe and reliable method of initiating, maintaining, and monitoring desired anticoagulant response.
- To initiate appropriate VTE prophylaxis of patients who are at risk.
- To educate patients on the risks and management of anticoagulant therapy.
- To assist and educate pharmacy, nursing, and physicians on appropriate anticoagulation therapy.

POLICY:

1. Patients admitted to the hospital will be assessed for VTE risk within 48 hours of admission.
2. All patients initiated or continued on anticoagulant therapy will be monitored for efficacy and safety.
3. The following labs must be available upon admission/initiation of therapy:
 - a. INR (for warfarin)
 - i. For all conditions except mechanical valve and joint replacement the therapeutic goal is 2-3.
 - b. Platelets
 - c. Creatinine/BUN
4. The pharmacist and/or nurse will provide patient education about anticoagulation including risks, interactions, and monitoring.
 - a. The Registered Dietician will specifically address and reinforce information about warfarin/food interactions.

PROCEDURE:

A Copley Hospital pharmacist in conjunction with VPCH nursing staff will assess patients within 48 hours of admission utilizing the Copley Hospital “VTE Risk Factor Assessment” form located at “S:\Shared\Pharmacotherapy\VTE\VT RiskAssessmentForm.doc”.

The completed form will be placed in the chart in the physician’s progress section. Periodic review of compliance will be reported to the Pharmacy &Therapeutic Committee .

A Copley Hospital pharmacist will actively monitor patients who are on anticoagulation medication; specifically, warfarin-and enoxaparin. The physician will be contacted and consulted when related lab values are out of range, or there are other issues that could affect the patient’s outcome and safety.

Warfarin

- When considering the initiation of warfarin therapy, the average starting dose is 5 mg. Elderly patients often require lower doses in the 2-4 mg range. The patient's state of health and current medications may indicate a higher or lower dose need to be considered.
- Because warfarin takes an average of 5 days to become fully effective, there is no benefit to using a loading dose. Loading doses, particularly in elderly patients, may lead to excessive anticoagulation and adverse side-effects and are not recommended.
- Warfarin therapy will be monitored utilizing the INR value. For the purpose of this policy, therapeutic INR values are as follows:
 - INR = 2-3 for all indications except for mechanical heart valve
 - INR = 2.5-3.5 for mechanical heart valve

① American College of Chest Physicians (ACCP)
- INRs should be done daily until they are within therapeutic range. If two consecutive values are normal, then monitoring can be decreased to three times a week for 1 week, followed by weekly for 4 weeks, then biweekly for 8 weeks and then monthly. If there are any changes to the dose, the patient's health, or the patient's other medications that have a potential to adversely affect the warfarin levels, INRs should be rechecked until INRs are normalized
- The pharmacist will note any significant medication interactions. The pharmacist will determine whether an interaction is significant enough to recommend an intervention or increased monitoring.
- Dose changes should be done conservatively. Most dose adjustments of 1-1.5 mg are usually enough to accomplish the appropriate INR goal in most people. A change in dose will generally not be reflected in the INR value until approximately 36-48 hours later. INRs should be rechecked to ascertain that the INR is therapeutic.

Monitoring:

- The Copley Hospital pharmacist will document every patient who is receiving warfarin by completing a "Warfarin Monitoring Spreadsheet" located at S:\Groups\PHARMACY\WarfarinMonitoring.
- Each morning the pharmacist will review the warfarin spreadsheet for each patient and enter that day's information.
- The pharmacist will follow-up on any INR results that are out of range with a clinical note placed in the patient's chart. If the INR is excessively high and the patient is experiencing any adverse reactions, the pharmacist will contact the physician immediately. See below for general recommendations for dose changes and treatment for excessive INR, with or without side-effects:

Management of Non-therapeutic INRs (Chest recommendations 2004)		
INR	Symptom	Recommendation
Above therapeutic but less than 5	No Bleeding	Hold warfarin therapy. Consult with the physician who prescribed the warfarin or with the Copley physician contracted to provide primary medical care for VPCH patients. If so advised by the physician who prescribed warfarin or by the Copley primary care physician, lower or omit a dose; Resume therapy at a lower dose when INR returns to within therapeutic range. only minimally high, no dose adjustment may be required.
Greater than 5; Less than 9	No Bleeding	Hold warfarin therapy. Consult with the physician who prescribed the warfarin or with the Copley physician contracted to provide primary medical care for VPCH patients. If so advised by the physician who prescribed warfarin or by the Copley primary care physician, omit 1 or 2 doses, monitor INR more frequently; Resume therapy at a lower dose when INR is therapeutic; If risk of bleeding, omit next warfarin dose and give Vitamin K (phytonadione) 2.5mg orally as ordered by physician.
Greater than 9	Bleeding/No Bleeding	Hold warfarin therapy. Transport the patient to the Copley Hospital Emergency Department for assessment and treatment.

Warfarin reversal:

- Vitamin K (phytonadione) may only be given orally at VPCH.

Education:

- A list of all patients receiving warfarin therapy is automatically forwarded to the Nutritional Service via CPSI order entry. The Registered Dietician will provide education to the patient as to the appropriate diet choices to make while they are on the drug.
- The pharmacy and/or nurse will provide additional education to the patient and/or family as to other important aspects of taking the drug including adverse reactions, monitoring, and interactions.

The VPCH Pharmacist will periodically assess the review process for monitoring patients on warfarin and will look for opportunities to enhance involvement with the monitoring and management of the drug's use.

Approved by VPCH Policy Committee	Approval Date: April 7, 2014
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